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Chapter 2 Project Alternatives

2.1 Project Description Summary

The Mid County Parkway (MCP) is a proposed new freeway project located in western Riverside County, California. Figure 2.1.1 depicts the study area for the MCP project and the regional location of the proposed project. The MCP study area is approximately 16 miles long.

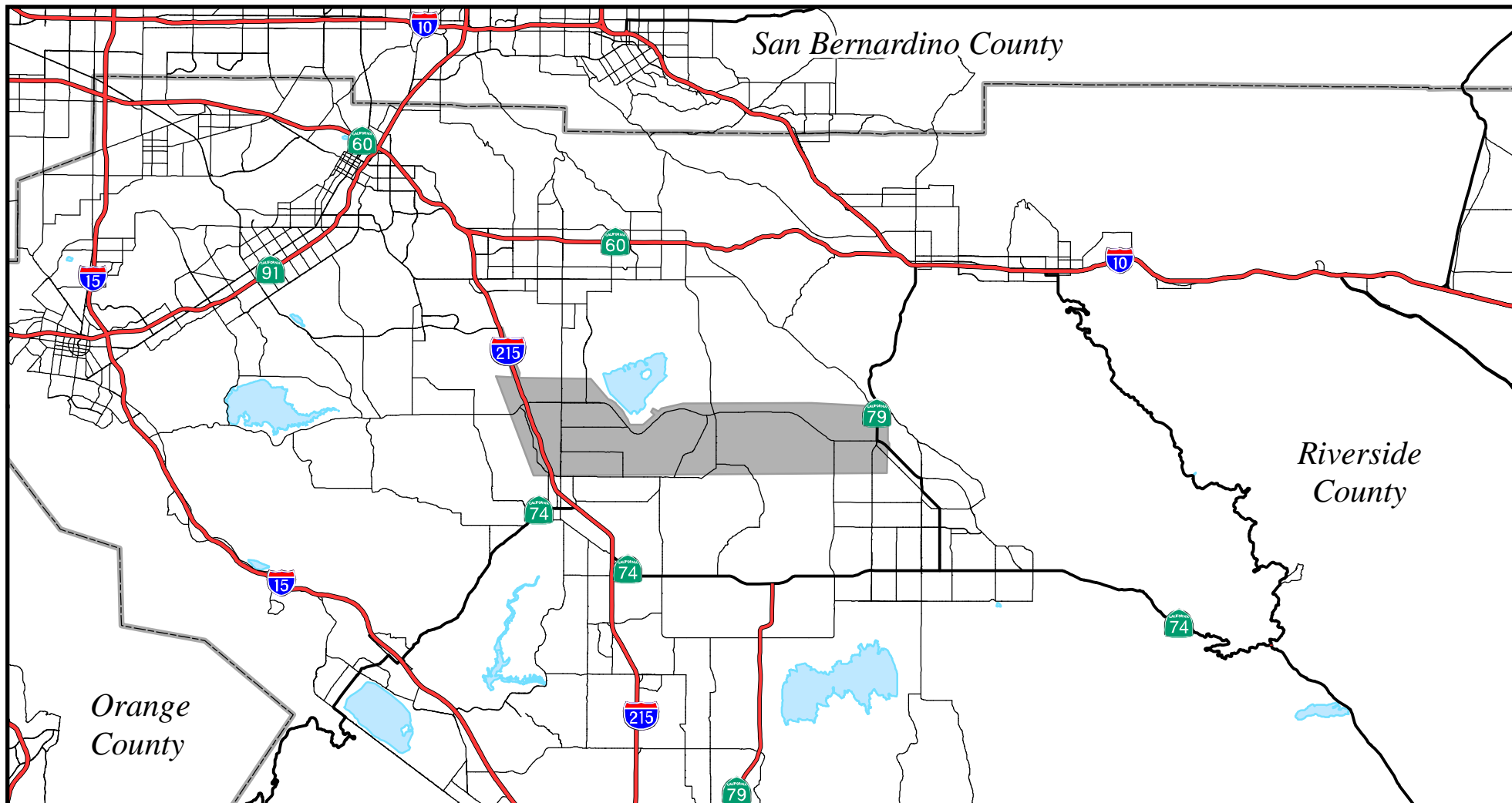
The MCP project will serve as a major west-east connection within western Riverside County and will also provide for regional movement to eastern Riverside County, Los Angeles County, and Orange County. As stated in Chapter 1.0, Proposed Project, the purpose of the proposed action is to provide a transportation facility that will effectively and efficiently accommodate regional west-east movement of people and goods between and through Perris and San Jacinto. The proposed action would adopt an MCP project alignment and construct a new freeway to meet current and projected 2040 travel demand from Interstate 215 (I-215) on the west to State Route 79 (SR-79) on the east.

This chapter describes the proposed action and the alternatives that were developed to meet the identified purpose and need for the MCP project, while avoiding or minimizing the potential for adverse environmental impacts. The No Build Alternatives consist of Alternatives 1A and 1B, and the Build Alternatives consist of Alternative 4 Modified, Alternative 5 Modified, and Alternative 9 Modified. This chapter also describes the Section 404 No Action Alternative developed for purposes of compliance with the Section 404(b)(1) Guidelines and United States Army Corps of Engineers (USACE) regulations (33 Code of Federal Regulations [CFR] 325, Appendix B).

This chapter also provides a brief history of the proposed project; discusses possible phasing for and construction of the three Build Alternatives; and discusses other alternatives that were considered but were eliminated from further evaluation in this EIR/EIS.

Finally, the latter part of this chapter describes the process used to evaluate and assess the proposed Build Alternatives that lead to the identification of Build Alternative 9 Modified as the preferred project alternative.

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Mid County Parkway Study Area

FIGURE 2.1.1

SOURCE: TBM (2010), Jacobs Engineering (2/2011)



0 3 6 MILES

Project Vicinity and Study Area

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-OF3200 (PN 0800000125)



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2.2 Project Background

The development of the MCP project began with the Hemet to Corona/Lake Elsinore (HCLE) Corridor studies conducted for the Community and Environmental Transportation Acceptability Process (CETAP), which was initiated by RCTC in 1999. The MCP (originally named the Cajalco Ramona Corridor) project was identified as a key east-west regional transportation corridor as a result of several years of comprehensive land use and transportation planning in Riverside County through the Riverside County Integrated Project (RCIP). The RCIP was an unprecedented, multi-year planning effort to simultaneously prepare environmental, transportation, housing, and development guidelines for Riverside County for the first half of the 21st century. The purpose of the RCIP is to address the planning, environmental, and transportation issues that would result from the anticipated doubling of population in Riverside County, from 1.5 million residents currently to approximately 3.1 million by 2020. The RCIP included three components: (1) a new General Plan for Riverside County, adopted on October 7, 2003; (2) a Multiple Species Habitat Conservation Plan (MSHCP) for western Riverside County, adopted June 17, 2003; and (3) the CETAP transportation corridors.

Engineering and environmental studies were initiated in 2004 for the MCP project, originally a proposed 32-mile facility between Interstate 15 (I-15) and State Route 79 (SR-79), and in September 2007, the RCTC Board selected a Locally Preferred Alternative (Alternative 9 Temescal Wash Design Variation) for the MCP project. In October 2008, a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the MCP project was circulated for a 90-day public review period. During this time, six public meetings/hearings were held and the RCTC accepted public comments for the record at all of these meetings, along with comments via the MCP project website and email. Over 3,100 comments were received from 50 public agencies and organizations, 10 large property owners, 240 individuals, and a form letter from over 1,100 individuals nationwide. Two key themes emerged in the public review comments: the cost and timing of available funds for the project and concerns about the impacts to rural communities and existing habitat reserves in the area between I-15 and I-215.

In spring 2009, to address the concerns identified in public comments on the Draft EIR/EIS, the RCTC as the lead agency under CEQA, the FHWA as the lead agency under NEPA, and with Caltrans assisting in producing the NEPA environmental document, developed an approach for completing the EIR/EIS process for the project. This approach modified the MCP project limits from 32 miles (I-15 to SR-79) to 16 miles (I-215 to SR-79) in order to focus transportation funding where the need is the greatest,

between I-215 to SR-79. On July 8, 2009, the RCTC Board formally took action to focus the MCP project between I-215 and SR-79 and to prepare a Recirculated Draft EIR/Supplemental Draft EIS for the modified project.

2.2.1 Development of MCP Alternatives

Beginning with the initiation of the project studies for the MCP in 2004, the MCP Alternatives have been developed and refined through a multiple agency coordination process, working as a collaborative group referred to as the Resource Agency Coordination group. The Resource Agency Coordination group currently includes representatives from RCTC, FHWA, Caltrans District 8, United States Fish and Wildlife Service (USFWS), United States Environmental Protection Agency (EPA), USACE, and California Department of Fish and Wildlife (CDFW). The alternatives development process as undertaken by the Resource Agency Coordination group originally resulted in eight alternatives that were intended to provide a reasonable range of alternatives to satisfy the Purpose and Need for the project. A description of the alternatives development process for the original MCP project is provided in Chapter 2 of the original Draft EIR/EIS for the MCP project (2008).

The next section describes the development of the alternatives that are evaluated in this EIR/EIS. The range of alternatives is intended to meet the requirements for alternatives analysis under the CEQA, NEPA, Section 404 of the federal Clean Water Act (CWA), and Section 4(f) of the Department of Transportation Act (now codified at 49 United States Code [USC] 303).

2.2.1.1 Development of the Modified MCP Alternatives

The RCTC and the MCP project team worked closely with FHWA and Caltrans to develop a modified set of alternatives to be evaluated in the Recirculated Draft EIR/Supplemental Draft EIS in response to RCTC's Board action in July 2009. The following summarizes the main changes from the set of alternatives evaluated in the Draft EIR/EIS and the modified set of alternatives evaluated in the Recirculated Draft EIR/Supplemental Draft EIS and this Final EIR/EIS. These improvements include features and components in the Build Alternatives and are within the maximum disturbance limits/right-of-way footprints for the Build Alternatives. The potential direct and indirect impacts of these modifications to the MCP Build Alternatives are evaluated in the environmental analyses provided in Chapter 3.

- Project limits for the build alternatives change to I-215 in the west and SR-79 in the east. The portion of the original alternatives west of I-215 is no longer under consideration.
- The horizontal alignment for Alternative 9 Modified between Perris Boulevard in the west and the Perris Valley Storm Drain in the east through the City of Perris has shifted approximately 1,000 feet (ft) north to avoid Paragon Park.
- Alternative 9 Modified includes a local interchange at Redlands Avenue to replace the local interchange previously proposed at Perris Boulevard.
- Improvements to I-215 include the following: (1) the addition of one auxiliary lane between the MCP/I-215 systems interchange and the adjacent service interchanges to the north and south to facilitate movement from the MCP and the I-215; (2) the addition of an operational/mixed flow lane from MCP to the Van Buren Boulevard Interchange to accommodate additional traffic on the I-215 as a result of the MCP; (3) the addition of an operational/mixed-flow lane from Nuevo Road to Cajalco-Ramona Expressway to facilitate weaving on the I-215 (previous build alternatives included collector-distributor roads and realignment of I-215 to accommodate weaving movements in this section of I-215); (4) the addition of a new interchange at Placentia Avenue; and (5) modification of the existing interchange at Cajalco Road/Ramona Expressway.

In April 2010, the transportation agencies, USACE, EPA, and USFWS agreed to begin conducting the project under the 2006 NEPA/CWA Section 404 Memorandum of Understanding (MOU), including application of the checkpoint process to the MCP project requiring agreement/disagreement or concurrence/nonoccurrence on Purpose and Need, Alternatives, and the Least Environmentally Damaging and Practicable Alternative (LEDPA). Refer to Chapter 5, Comments and Coordination, for additional information specific to agency coordination conducted under the 2006 NEPA/CWA Section 404 MOU.

In December 2010, pursuant to the 2006 NEPA/CWA Section 404 MOU, and on the behalf of the transportation agencies, Caltrans sent letters to the USACE, the EPA, and the USFWS requesting a formal “Agree/Disagree” response for the modified MCP set of alternatives. In January 2011, Caltrans received letters from the USACE, the EPA, and the USFWS providing their final agreement on the modified set of alternatives to be evaluated in the Recirculated Draft EIR/Supplemental Draft EIS.

See Chapter 5, Comments and Coordination, of this Final EIR/EIS for additional details pertaining to agency coordination, alternatives concurrence, and the NEPA and CWA

Section 404 Integration Process MOU. Copies of the letters discussed above are included in Appendix J, Supplemental Chapter 5, Attachments.

2.3 Project Alternatives

As discussed in Chapter 1, the MCP project limits were modified to 16 miles in 2009 to focus transportation funding where the need is the greatest, between I-215 to SR-79, near Ramona Expressway. The MCP project alternatives were subsequently reviewed and refined to address this change in the project.

Regarding the area between I-15 and I-215, this distinct transportation need will be addressed by the Riverside County Transportation Department's General Plan roadway improvements for Cajalco Road. The Cajalco Road improvement project is undergoing a separate environmental review process with the Riverside County Transportation Department acting as the lead agency. Additionally, a CETAP corridor between I-15 and I-215 remains in the Regional Transportation Plan (RTP) to allow for consideration of transportation improvements to address future needs beyond those being addressed by the Cajalco Road improvements.

Descriptions of the three MCP Build Alternatives (Alternatives 4 Modified, 5 Modified, and 9 Modified) and the two Design Variations (San Jacinto River Bridge [SJRBDV] and San Jacinto North [SJNDV]) that were evaluated in the Recirculated Draft EIR/Supplemental Draft EIS are provided below. The MCP Build Alternatives are designed to meet the Caltrans standard process for preliminary design, including geometric base maps, typical sections, profiles, right of way needs, surveys and mapping, traffic forecast and modeling, value analysis, hydraulic studies, utilities needs/impact assessments, railroad issues, materials and geotechnical information studies, alternatives, and environmental studies to determine project approval. The MCP Build Alternatives are currently at a 35 percent design level and will undergo final design (i.e., completion of a 100 percent design level that would be used for construction bidding) during the Plans, Specifications, and Estimates (PS&E) stage that would occur after project approval.

Descriptions of the two No Build/No Action Alternatives (Alternatives 1A and 1B) are provided later in this section (see Section 2.3.4).

Alternatives that were considered but eliminated from further analysis are discussed in this Final EIR/EIS in Section 2.6, Alternatives Considered and Withdrawn from Further Study.

2.3.1 Project Build Alternatives

2.3.1.1 Alternative 4 Modified: North Perris (Drain)

Alternative 4 Modified proposes a six-lane controlled access freeway. Alternative 4 Modified follows a northern alignment through the city of Perris, adjacent to the Perris Drain (as shown in Figure 2.3.1a).

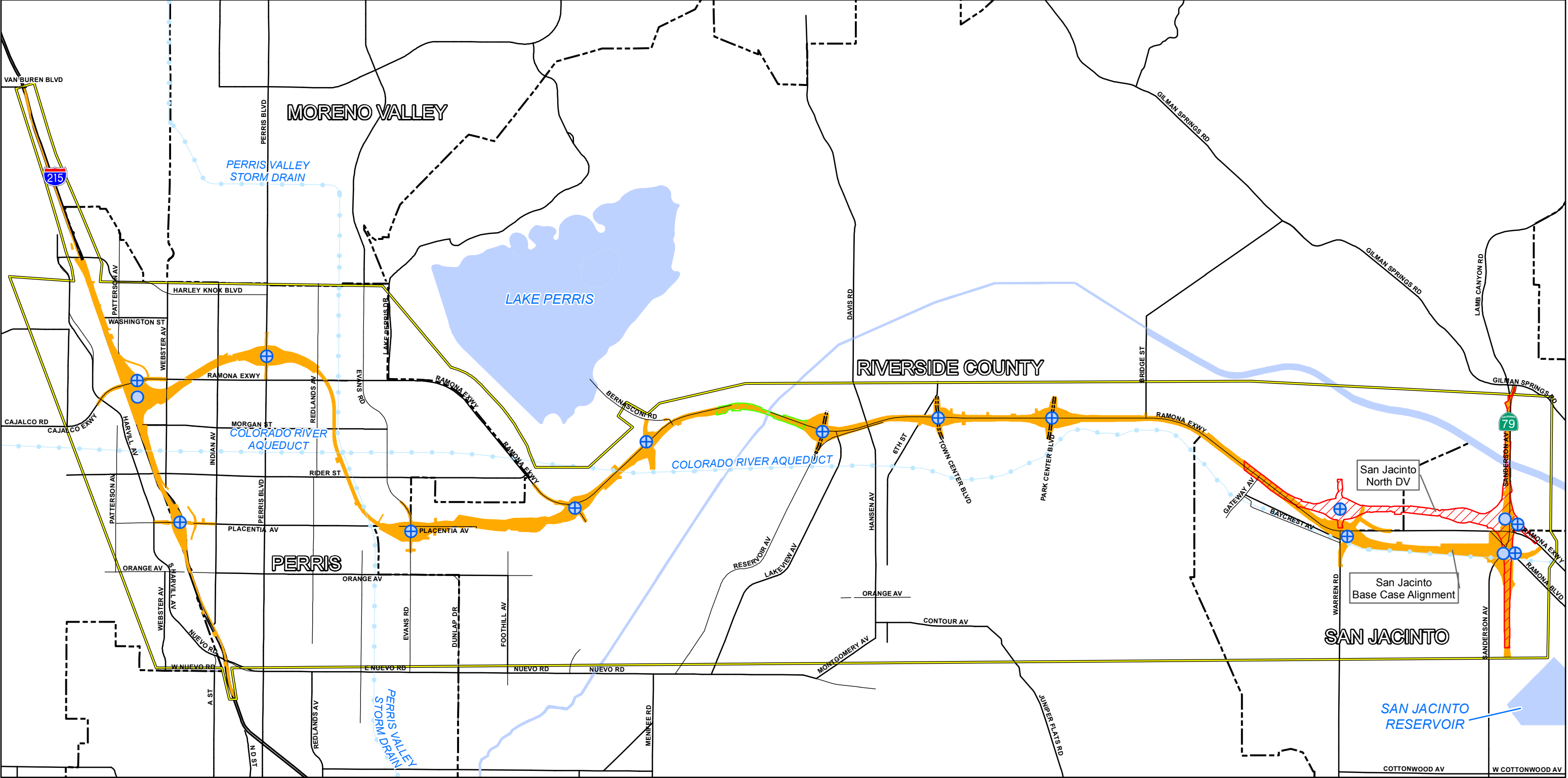
System interchanges (a freeway-to-freeway type interchange) are proposed for all Build Alternatives at I-215 and SR-79. Descriptions of these system interchanges are as follows:

- The MCP/I-215 interchange is proposed as a three-level interchange that will not preclude possible future connections to the west. At the highest point, the MCP/I-215 interchange would be approximately 75 to 100 ft above ground level.
- The MCP/SR-79 interchange is proposed as a three-level interchange at an approximate height of 75 ft. The MCP connection to SR-79 will be made at the proposed realignment of SR-79, south of Ramona Expressway.¹ The MCP provides direct connectors to northbound and southbound SR-79, as well as a six-lane easterly extension that terminates at a proposed signalized intersection at Ramona Expressway. The MCP also has an at-grade intersection with Sanderson Avenue just west of SR-79.

Service interchanges (interchanges that connect a freeway to local arterials) for Alternative 4 Modified are proposed at Perris Boulevard, Evans Road, Ramona Expressway/Antelope Road, Bernasconi Road, Reservoir Road, Town Center Boulevard (proposed arterial shown on the Riverside County General Plan), Park Center Boulevard (proposed arterial shown on the Riverside County General Plan), and Warren Road (see Figure 2.3.1a).

¹ As discussed in the subsection titled “Related Projects” in Chapter 1.0, SR-79 is proposed to be realigned as a four-lane limited access expressway on a new alignment from south of Domenigoni Parkway to north of Gilman Springs Road and is currently undergoing separate environmental review. The SR-79 improvements will be constructed prior to the MCP; as a result, the environmental effects within the footprint of this interchange would occur as a result of the SR-79 improvements and not the MCP project.

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Study Area	Alternative 4 Modified
City Limits	San Jacinto North Design Variation
Planned Roads	San Jacinto River Bridge Design Variation

Interchanges

Service
System

SOURCE: Jacobs Engineering (02/2011); TBM (2006)

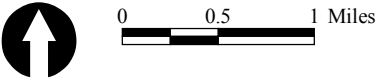


FIGURE 2.3.1a



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All of the modified Build Alternatives, including Alternative 4 Modified, include improvements to I-215. These improvements are as follows: (1) the addition of one auxiliary lane between the MCP/I-215 systems interchange and the adjacent service interchange to the north and south to facilitate movement between the MCP and I-215; (2) the addition of an operational/mixed flow lane from MCP to the Van Buren Boulevard Interchange to accommodate additional traffic on I-215 as a result of the MCP; (3) the addition of an operational/mixed-flow lane from Nuevo Road to Cajalco-Ramona Expressway or Harley Knox Boulevard to facilitate weaving on I-215;¹ (4) the addition of a new interchange at Placentia Avenue; and (5) the modification of the existing interchange at Cajalco Road/Ramona Expressway.

Alternative 4 Modified includes two Design Variations: SJRB DV and SJN DV.

2.3.1.2 Alternative 5 Modified: South Perris (at Rider Street)

Alternative 5 Modified is a six-lane controlled-access freeway. Alternative 5 Modified follows a central alignment through the city of Perris along Rider Street (as shown in Figure 2.3.1b).

System interchanges proposed for Alternative 5 Modified are the same as for Alternative 4 Modified, with connections at I-215 and SR-79. However, the I-215 system interchange differs from that in Alternative 4 Modified as it connects the MCP to I-215 near Rider Street. As with Alternative 4 Modified, the system interchange at I-215 is proposed as a three-level interchange that will not preclude possible future connections to the west. The interchange will be approximately 75 to 100 ft above ground level. Alternative 5A also includes realignment of I-215 to the east, due to limited right of way on the west side from Ramona Expressway to Harley Knox Boulevard.

Locations of the service interchanges proposed for Alternative 5 Modified are the same as those in Alternative 4 Modified: Perris Boulevard, Evans Road, Ramona Expressway/Antelope Road, Bernasconi Road, Reservoir Road, Town Center Boulevard (proposed arterial shown on the Riverside County General Plan), Park Center Boulevard (proposed arterial shown on the Riverside County General Plan), and Warren Road (see Figure 2.3.1b).

¹ This operational/mixed-flow lane would be from Nuevo Road to Harley Knox Boulevard for Alternative 4 Modified and from Nuevo Road to Cajalco-Ramona Expressway for Alternatives 5 Modified and 9 Modified.

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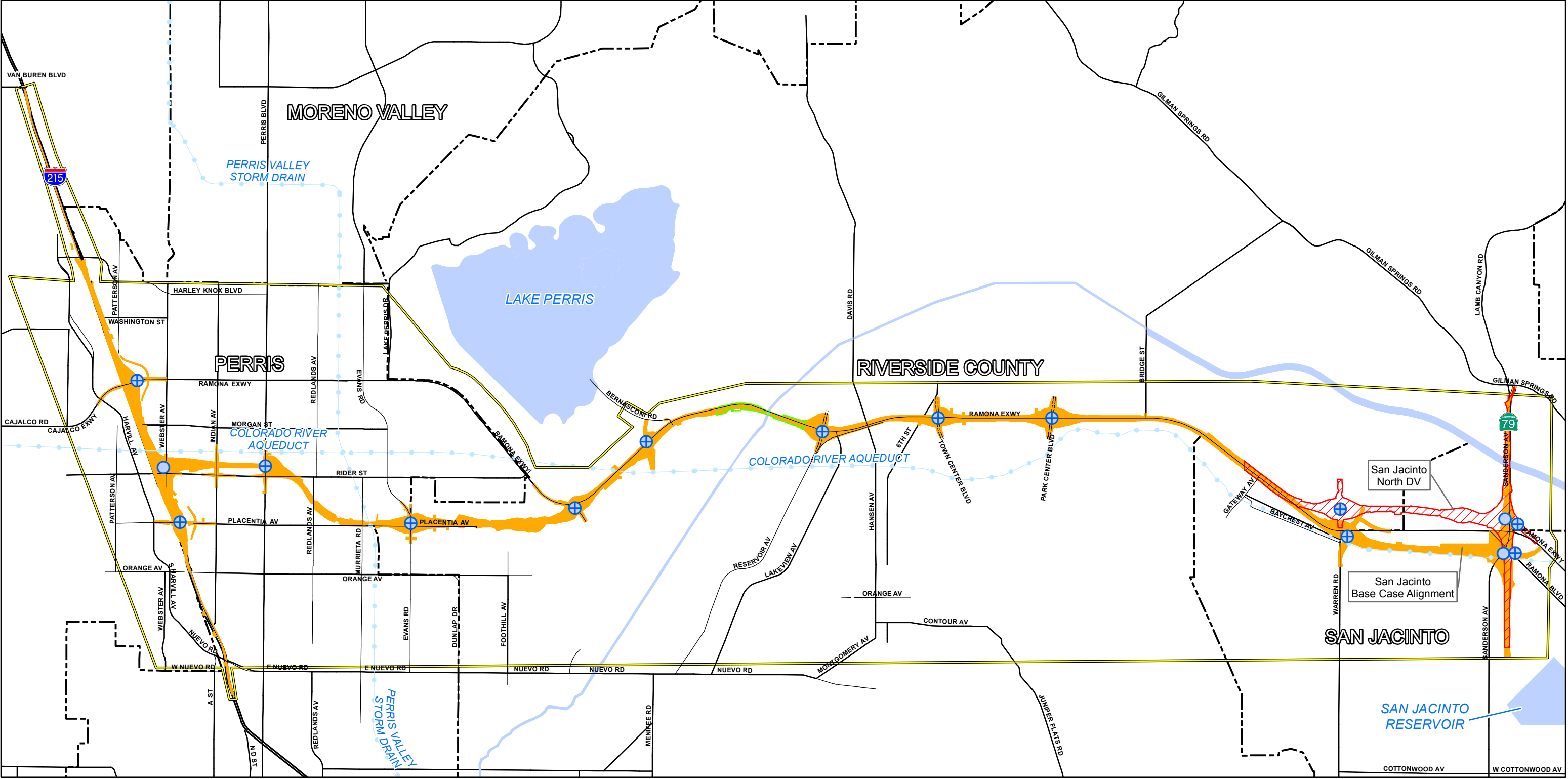


FIGURE 2.3.1b

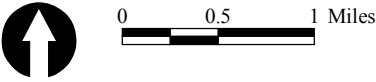
LEGEND

Study Area	Alternative 5 Modified
City Limits	San Jacinto North Design Variation
Planned Roads	San Jacinto River Bridge Design Variation

Interchanges

Service
System

SOURCE: Jacobs Engineering (02/2011); TBM (2006)



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Alternative 5 Modified also includes the same improvements to I-215 as described above for Alternative 4 Modified. Also Alternative 5 Modified includes the same Design Variations as Alternative 4 Modified: SJRB DV and SJN DV.

2.3.1.3 Alternative 9 Modified: Placentia Avenue

Similar to Alternatives 4 Modified and 5 Modified, Alternative 9 Modified is a six-lane controlled-access freeway. Alternative 9 Modified follows a southerly alignment through the city of Perris along Placentia Avenue (as shown in Figure 2.3.1c).

System interchanges are proposed for all Build Alternatives, including Alternative 9 Modified, at I-215 and SR-79. The system interchange at SR-79 is the same as those proposed for Alternative 4 Modified and Alternative 5 Modified. However, the I-215 system interchange differs from those in Alternatives 4 Modified and 5 Modified as it connects the MCP to I-215 near Placentia Avenue. As with Alternatives 4 Modified and 5 Modified, the system interchange at I-215 is proposed as a three-level interchange that will not preclude possible future connections to the west. The interchange will be approximately 75 to 100 ft above ground level. The existing railroad tracks west of I-215 are proposed to remain in place. Service interchanges are also proposed for Alternative 9 Modified at the following locations: Redlands Avenue, Evans Road, Ramona Expressway/Antelope Road, Bernasconi Road, Reservoir Road, Town Center Boulevard (proposed arterial shown on the Riverside County General Plan), Park Center Boulevard (proposed arterial shown on the Riverside County General Plan), and Warren Road (see Figure 2.3.1c).

Alternative 9 Modified also includes the same improvements to I-215 as described above for Alternatives 4 Modified and 5 Modified. In addition, Alternative 9 Modified has been designed to avoid, in the city of Perris, Paragon Park and Fire Station No. 90, both of which would have been impacted by the original alignment of Alternative 9.

Alternative 9 Modified includes the same Design Variations as Alternatives 4 Modified and 5 Modified: SJRB DV and SJN DV.

2.3.1.4 Design Variations

San Jacinto River Bridge Design Variation

Under the SJRB DV, the MCP project would construct two bridges in the Lakeview Nuevo area, a 531 ft bridge spanning Martin Street and a 1,941 ft bridge spanning the San Jacinto River, for a total of 2,472 ft of bridge. The base case design in all three build alternatives proposes one 4,321 ft bridge to span the entire San Jacinto River floodplain and Martin Street as shown on Figure 2.3.1d. The SJRB DV applies to all three build

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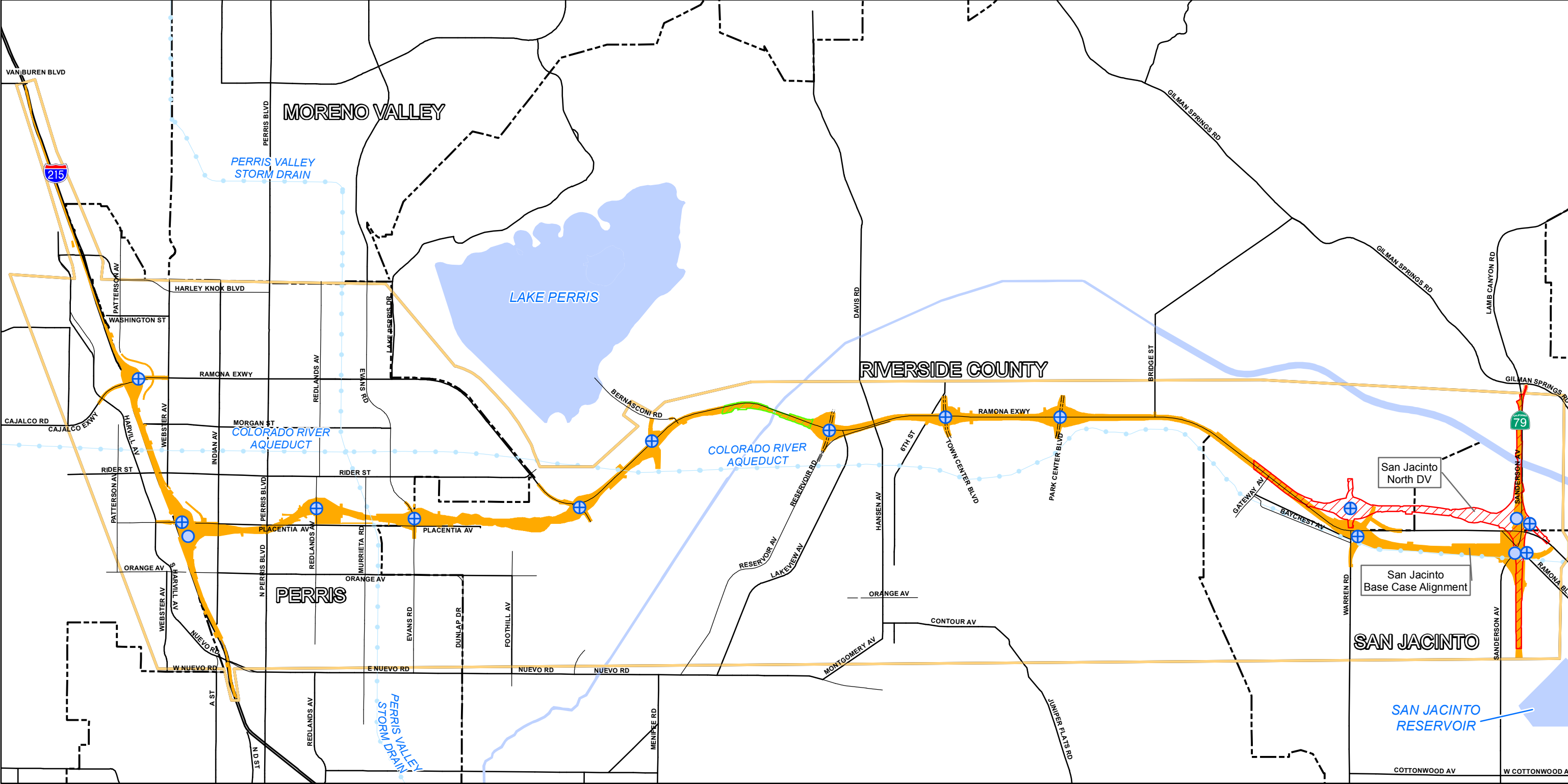


FIGURE 2.3.1c

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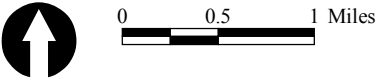
Study Area	Alternative 9 Modified
City Limits	San Jacinto North Design Variation
Planned Roads	San Jacinto River Bridge Design Variation

Interchanges

Service

System

SOURCE: Jacobs Engineering (02/2011); TBM (2006)



Alternative 9 Modified

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

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alternatives (Alternatives 4 Modified, 5 Modified, and 9 Modified; see Figures 2.3.1a–2.3.1c). The SJRB DV would also include a section of 1,849 linear feet of fill on either end of the bridges within the same limits as the base case bridge as shown on Figure 2.3.1e. Similar to the base case, the bridges under this design variation would be located to the south of the existing Ramona Expressway Bridge over the San Jacinto River, which is 255 ft in length and would remain in place.

San Jacinto North Design Variation

Under the SJN DV, the MCP route diverges from the proposed MCP alignment from west of Warren Road and follows an alignment easterly that is approximately 1,140 ft north of the existing Ramona Expressway. The SJN DV will also provide a connection to existing Ramona Expressway from Warren Road, similar to the base case for Alternatives 4 Modified, 5 Modified, and 9 Modified (see Figures 2.3.1a–2.3.1c).

2.3.2 Common Design Features of the Build Alternatives (Alternatives 4 Modified, 5 Modified, and 9 Modified)

2.3.2.1 Design

The MCP Build Alternatives would be designed and constructed consistent with the facility design standards in the Caltrans *Highway Design Manual* (HDM 2006 Sixth Edition), roadway geometric criteria and standard design features. Also, design standards for Surface Transportation Assistance Act of 1982 (STAA) National Network for large trucks were applied. Caltrans design standards (Section 501.3 in the HDM) require that the minimum interchange spacing shall be 1 mile in urban areas, 2 miles in rural areas, and 2 miles between system interchanges and service interchanges.

Non-standard Design Features

Non-standard design features are design features or elements which deviate from standards indicated in the *Caltrans Highway Design Manual*. Non-standard design features need to go through the Caltrans approval process procedures and documentation requirements for exceptions to the design standards. Definitions of standards provided below are included in Appendix E, Glossary of Technical Terms, of this document.

The need for deviations from adopted design standards is a result of an existing condition and/or a need to avoid a resource. Engineers are faced with complex tradeoffs when designing highways, with the need to balance cost, safety, mobility, social and environmental impacts, and the needs of a wide variety of roadway users. For example, freeway service interchanges at local streets should be spaced to standard 1 mile spacing. However, there are existing local roads in the City of Perris that the MCP facility would

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cross but that are not necessarily spaced 1 mile apart. The locations of those local streets were evaluated to determine the best locations for the service interchanges. As a result, some service interchanges may be less than the standard 1 mile spacing. Another example is at Paragon Park where the alignment was shifted to fully avoid the park. Because the MCP facility would not be on a straight alignment in that area, the facility design would not meet all the required standards. Each non-standard feature is documented in a Fact Sheet which considers traffic conditions, safety, incremental improvements, and other items to support Caltrans' and/or FHWA's to make a decision to approve the requested non-standard design features.

The original 32-mile MCP project included several non-standard features based on design standards described in the 2006 HDM, Sixth Edition Change No. 6 (English). Fact Sheets for Exceptions to Mandatory Design Standards for the initially proposed I-215/MCP and SR-79/MCP interchanges were approved by Caltrans in August 2007.

The modifications to the project limits in 2009 for an MCP facility between I-215 and SR-79 include design features that deviate from the standards in the Caltrans HDM and, therefore, would require exceptions to those standards. Specifically, a Supplemental Exceptions to Mandatory Design Standards on I-215 for MCP Alternative 9 Modified was approved by Caltrans in September 2011 and by FHWA in August 2012. The features identified below have been previously approved in the Mandatory Fact Sheets (dated August 2007); were approved in September 2011; or were recently approved in the I-215 Advisory Fact Sheet (February 2014), the MCP Mainline Mandatory Fact Sheet (April 2014), or the MCP Mainline Advisory Fact Sheet (September 2014). The design exceptions for the MCP project are listed below:

Mandatory Standard

- Horizontal Stopping Sight Distance: HDM Index 201.6
- Standards for Superelevation: HDM Index 202.2
- Interchange Spacing: HDM Index 501.3
- Weaving Length: HDM Index 504.7

Advisory Standard

- Side Slope Standards: HDM Index 304.1
- Distance between Ramp Intersection and Local Road Intersection: HDM Index 504.3(3)

The following Advisory Standards are applicable to Alternative 9 Modified with the SJRB DV (the preferred alternative):

- Two Curb Ramps: HDM Index 105.5(2)
- Superelevation Transition/Runoff Length: HDM Index 202.5(1)
- Mainline Lane Reduction at Interchange: HDM Index 504.6
- Median Width: HDM Index 305.1(2)

2.3.2.2 Typical Sections

The typical sections for the MCP Build Alternatives provide a six-lane freeway. The traffic analysis to define the required typical section was based on a 2040 traffic forecasting model (see *MCP Traffic Report, 2012*).

The alternatives being analyzed include sufficient rights of way to accommodate a multimodal transportation facility that includes both highway lanes and a wide median that could accommodate a future travel lane or a transit facility if warranted by future travel demand beyond 2040. This Final EIR/EIS only addresses the MCP project as described in Section 2.3; any additional improvements would be subject to separate environmental documentation. The proposed action is the acquisition/preservation of right of way and the construction of a specific highway facility; therefore, the alternatives are specified in terms of an ultimate facility that the right of way will accommodate. The following elements are included in the design concept for the ultimate facility:

- Three mixed-flow lanes in each direction for the build alternatives.
- Shoulders designed to Caltrans standards for freeways.
- Median designed to Caltrans standards for freeways.
- Slopes designed to Caltrans standard for freeways.

Generally, the needed right of way varies from 220 ft to 660 ft in width. Figure 2.3.2 shows the typical section for the MCP mainline. The alternatives may require right of way that vary in width as a result of topography requiring cut (excavation) and fill, features of the natural and built environment, and design requirements. Therefore, variations in these cross sections are needed in constrained areas. The right of way defined for acquisition is shown in Appendix O, Parcel Acquisitions, in this Final EIR/EIS.

2.3.2.3 Interchanges

The MCP Build Alternatives include interchanges at I-215 and SR-79, and at major arterials in the study area to allow traffic to travel to and from the MCP, I-215, SR-79,

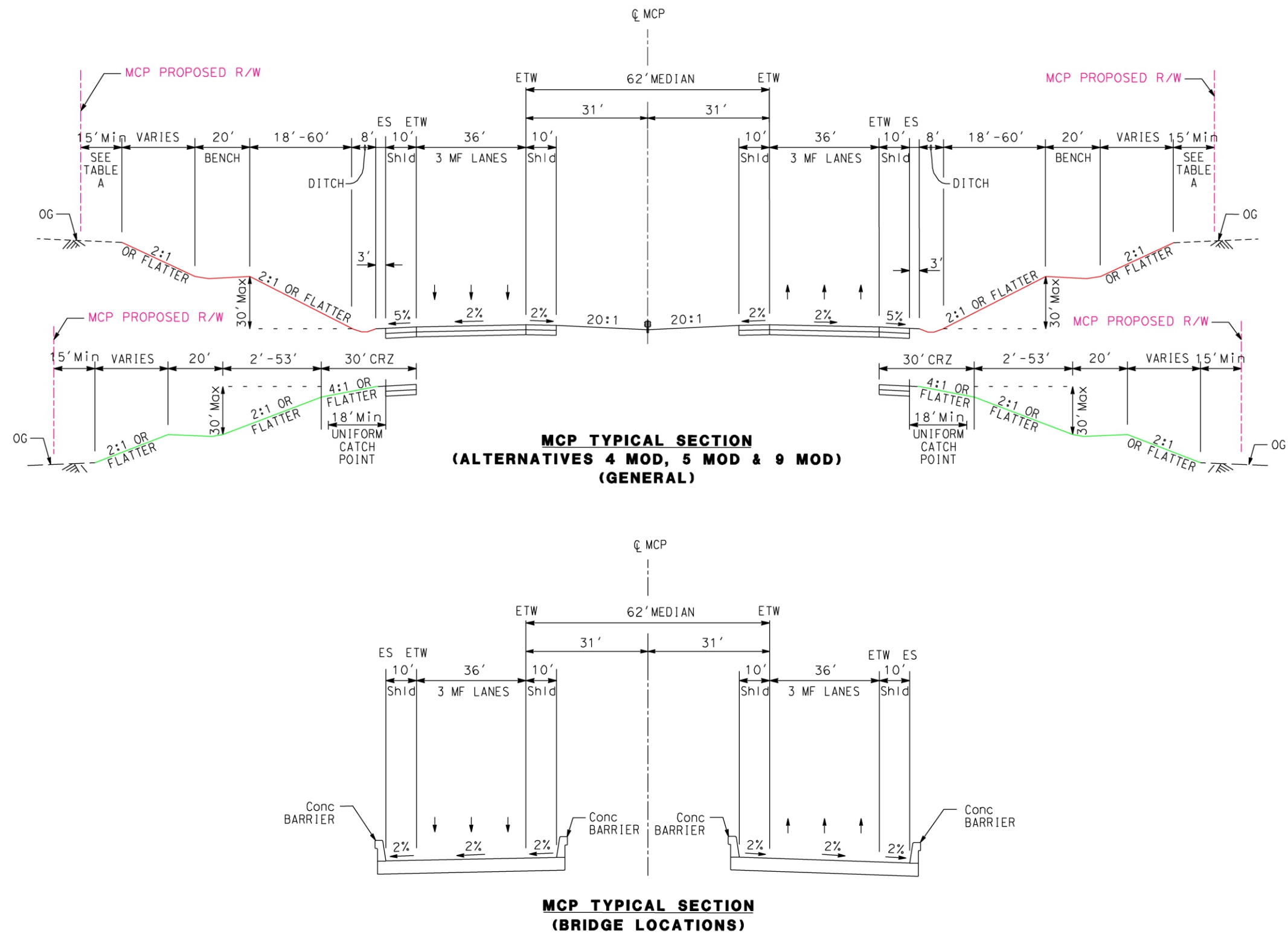


Figure 2.3.2

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and area arterials. There are two kinds of interchanges associated with the MCP Alternatives:

- System interchanges at I-215 and the proposed realignment of SR-79. The proposed MCP/I-215 interchange has three variations depending on the alternative. The MCP/SR-79 interchange and design variation is the same for all three MCP Build Alternatives. Each of the system interchanges and related improvements to existing interchanges and arterials associated with the new system interchanges is described in detail below.
- Service interchange locations were determined by the 2040 travel demand forecasts and coordination with the Cities of Perris and San Jacinto and the County of Riverside General Plan Circulation Elements. Table 2.3.A lists the proposed service interchanges for each alternative along the MCP mainline. The proposed service interchanges for the MCP Build Alternatives consist of the following types: compact diamond, spread diamond, two-quadrant cloverleaf, and partial cloverleaf. For detailed exhibits of all the service interchanges for each alternative, see Figure 2.3.3, Typical Local Street Interchanges. The Modified MCP Build Alternatives would permanently remove the connection of Davis Road and Hansen Avenue to Ramona

Table 2.3.A Mainline MCP Service Interchange Configuration Types

<u>Service Interchange Locations⁽¹⁾</u>	Alt 4 Mod	Alt 5 Mod	Alt 9 Mod	Alts 4 Mod, 5 Mod, 9 Mod SJN DV
Perris Boulevard	L-2 WB/L-9 EB	L-7 WB/L-8 EB	N/A	4 Mod: L-2 WB/L-9 EB 5 Mod: L-7 WB/L-8 EB
Redlands Avenue	N/A	N/A	L-2 WB/L-1 EB	9 Mod: L-2 WB/L-1 EB
Evans Road	L-9	L-9	L-9	L-9
Ramona Expressway	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB
Bernasconi Road	L-7	L-7	L-7	L-7
Reservoir Avenue	L-1 WB/L-9 EB	L-1 WB/L-9 EB	L-1 WB/L-9 EB	L-1 WB/L-9 EB
Town Center Boulevard	L-7 WB/L-1 EB	L-7 WB/L-1 EB	L-7 WB/L-1 EB	L-7 WB/L-1 EB
Park Center Boulevard	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB
Warren Road	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB	L-9 WB/L-1 EB

Source: Jacobs Engineering, 2011.

⁽¹⁾ As shown, no service interchange is proposed at Davis Road.

Alt/Alts = Alternative

DV = Design Variation

EB = eastbound

L-1 = Compact Diamond

L-2 = Spread Diamond

L-7 = Two-Quadrant Cloverleaf

L-8 = Two-Quadrant Cloverleaf

L-9 = Partial Cloverleaf

MCP = Mid County Parkway

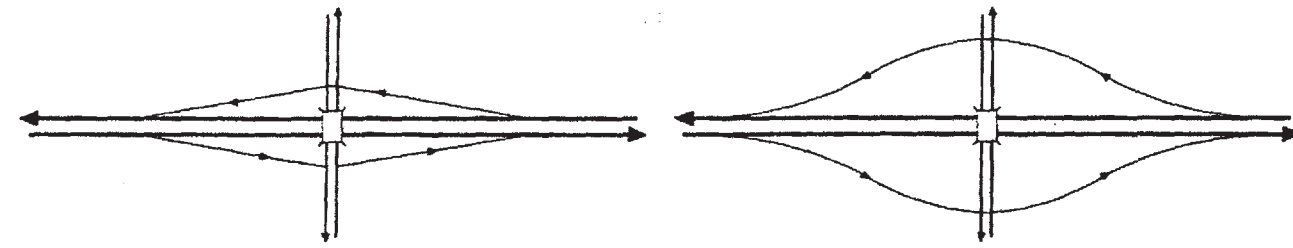
Mod = Modified

N/A = not applicable

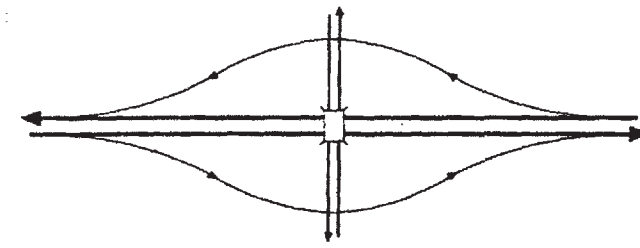
SJN DV = San Jacinto North Design Variations

WB = westbound

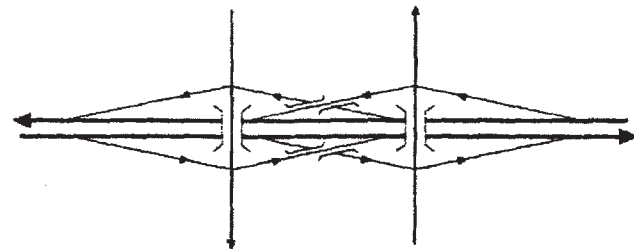
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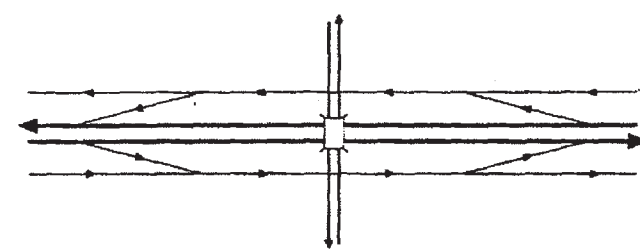
TYPE L-1
Compact Diamond



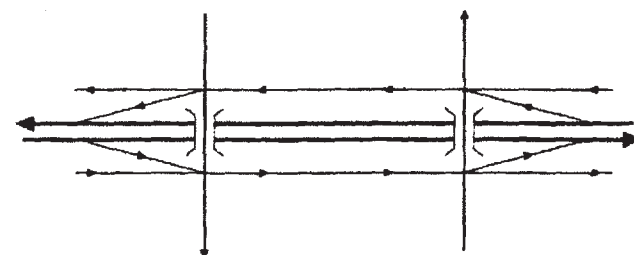
TYPE L-2
Spread Diamond



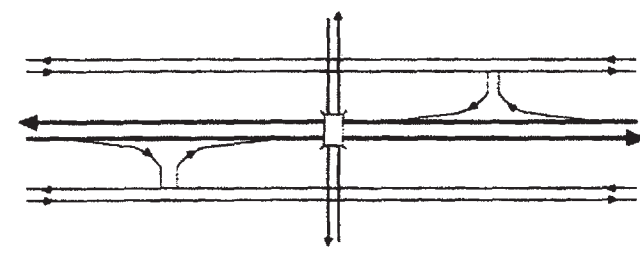
TYPE L-3
Split Diamond
w/Braids



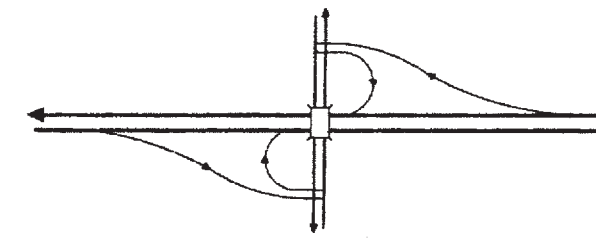
TYPE L-4
Parallel Street Systems



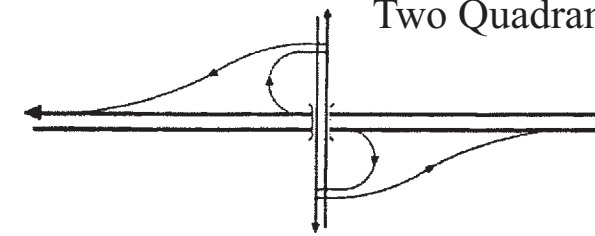
TYPE L-5
Parallel Street Systems



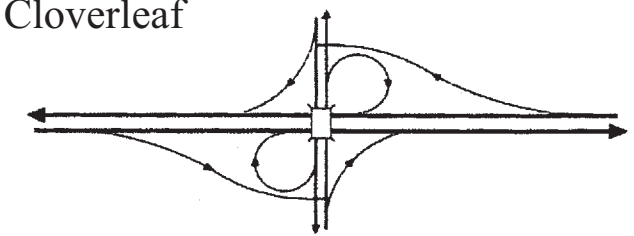
TYPE L-6
Parallel Street Systems



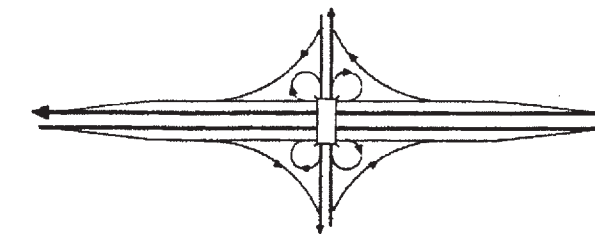
TYPE L-7
Two Quadrant Cloverleaf



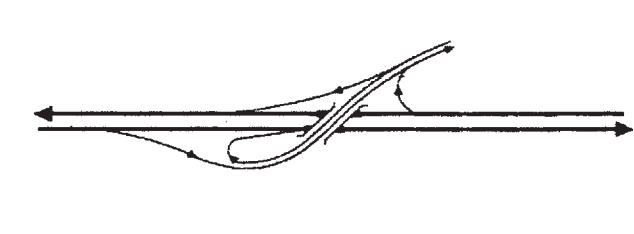
TYPE L-8
Two Quadrant Cloverleaf



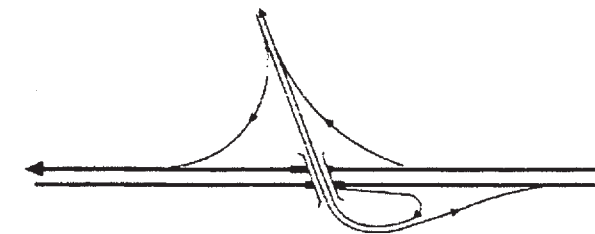
TYPE L-9
Partial Cloverleaf



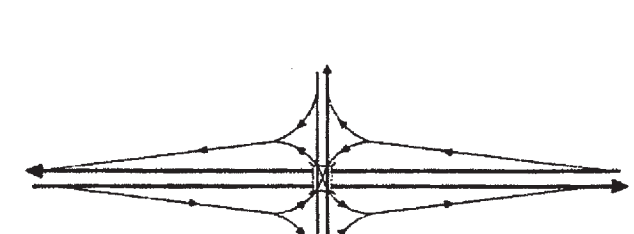
TYPE L-10
Four Quadrant Cloverleaf



TYPE L-11
Trumpet



TYPE L-12
Trumpet



TYPE L-13
Single Point Interchange

Figure 2.3.3

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Expressway because the Ramona Expressway in that area would be replaced by the MCP facility with controlled access limited to interchanges only. The proposed access point for the San Jacinto Wildlife Area and other land uses in that vicinity would be via the service interchange at Reservoir Road crossing over the MCP facility (from the south side to the north side), or by exiting the MCP facility at Reservoir Road and proceeding north to an east/west road connecting to Davis Road.

The east/west road may be an extension of Marvin Road or some other east/west road constructed as the area is built out, according to the adopted Riverside County General Plan Land Use and Circulation Elements. If at the time construction of the MCP facility in this area is initiated, the east/west road connecting Reservoir Road to Davis Road has not been built by others, the MCP project would be responsible for providing access to Davis Road so that no area is left without access during the MCP construction and operation.

In addition to the service interchanges described above along the MCP mainline, all three Build Alternatives include improvements to the existing Cajalco Road/Ramona Expressway service interchange at I-215, a new service interchange at the existing Placentia overcrossing at I-215,¹ a new service interchange at the eastern terminus of the MCP freeway with access to Ramona Expressway,² and restriping at the Nuevo Road interchange at I-215. Alternatives 4 Modified and 5 Modified also include ramp modification to the Harley Knox Boulevard interchange at I-215.

2.3.2.4 Bridges

Bridges are provided at major crossings of water resources, natural resources, local roads, and railroads to provide access over the MCP project for vehicle, pedestrian, bicycle, equestrian, and wildlife uses. Bridges, rather than culverts, are proposed in many areas to minimize or avoid impact to water resources. Bridges are also provided to minimize or

¹ Under Alternatives 4 Modified and 5 Modified, the interchange is proposed as a Spread Diamond (Type L-2) for I-215 southbound and a Compact Diamond (Type L-1) for I-215 northbound. Under Alternative 9 Modified, the interchange is proposed as a Compact Diamond (Type L-1) for I-215 southbound and a Spread Diamond (Type L-2) for I-215 northbound.

² Under the base case for each MCP Build Alternative, the interchange is proposed as a Single Point (Type L-13) for the base case. For the SJN DV, the interchange is proposed as a Compact Diamond (Type L-1) for SR-79 southbound and a Two-Quadrant Cloverleaf (Type L-7) for SR-79 northbound for the design variation.

reduce right of way acquisitions especially in developed areas. All bridges will be designed to Caltrans standards. The bridges have been categorized into four types of crossings: “Water and Natural Resources,” “Local Roads,” “Wildlife Crossings,” and “Other Crossings.”

The bridge cross sections would be consistent with the road cross sections on either side of the bridge. For example, if a bridge is provided on a road segment with four general-purpose lanes, the bridge structure cross section would also provide four general-purpose lanes.¹ Therefore, the cross sections on the bridges would match the MCP project cross sections or the General Plan local circulation element facility for local arterial roads crossing the MCP project.

The locations of bridge structures along the MCP Build Alternatives are shown in the figures in Appendix I, Supplemental Chapter 2 Attachments, Attachment A; and bridge lengths with the types of crossings are shown in Appendix I, Attachment B. Section 3.7, Visual/Aesthetics, provides additional discussion of views of the proposed facility, including bridges, as well as mitigation measures to incorporate attractive walls, medians, and other visually pleasing hardscape elements in project design (Mitigation Measure VIS-4) and incorporating a context-sensitive design process (Mitigation Measure VIS-3).

Bridges for Water Crossings

The MCP Build Alternatives include a number of bridge structures crossing water and natural resources. Appendix I, Attachment B, lists the MCP Build Alternatives and the locations along these alignments where bridges are proposed to span water resources and natural resources. These bridges can also serve to provide for movement of wildlife, along with providing a crossing of water. Bridges for the sole purpose of wildlife crossings are discussed later in this section.

Bridges will be constructed to Caltrans design standards and are proposed for all major river/stream crossings, including Perris Drain and the San Jacinto River. Major river/stream crossings are described below.

- **Perris Drain:** Alternative 4 Modified includes a section adjacent to the west side of the Perris Drain that then crosses the Perris Drain near Placentia Avenue. For Alternative 4 Modified, a 1.8-mile (9,700 ft) long bridge is proposed to avoid

¹ The Riverside County General Plan Circulation Element was used to determine the future width of local roadways to accommodate potential growth in the width of an overcrossing or length of an undercrossing.

impacting the floodplain. Approximately 1,200 ft of the bridge crosses over the Perris Drain. Alternative 5 Modified crosses the Perris Drain in one location with a 700 ft bridge. Alternative 9 Modified crosses the Perris Drain in one location with an 800 ft bridge. The bridge height ranges from 17 ft to 41 ft. The bridge crossing of the Perris Drain would accommodate all proposed future improvements to the Perris Drain with minimal effect on the channel. All abutments are located outside the channel and jurisdictional federal and state areas; however, some bridge columns will be placed in these jurisdictional areas.

- San Jacinto River (Lakeview/Nuevo):** All MCP Build Alternatives cross the San Jacinto River floodplain, a natural curving watercourse measuring 3,936 ft in width, where it is crossed by the MCP Build Alternatives. Under the base case for each MCP Build Alternative, the project would construct two parallel, three-lane bridges, which are 4,321 ft long and 13 to 42 ft high, downstream of the existing Ramona Expressway crossing of the San Jacinto River. This design would minimize floodplain encroachment and reduce hydraulic impacts. The proposed new bridges would be approximately 38 ft apart. The width of each bridge would be 60 ft. The existing Ramona Expressway Bridge over the San Jacinto River would become part of a frontage road. The proposed MCP bridge over the San Jacinto River is within the Western Riverside County MSHCP Criteria Area and would accommodate wildlife movement within the San Jacinto River floodplain. The bridge would cross the river floodplain while completely avoiding the placement of fill material into the wetlands, non-wetland waters, and CDFW jurisdictional areas. All abutments and bridge columns are located outside all waters of the United States and CDFW jurisdictional areas. As discussed previously in Section 2.3.1.4, the MCP project includes a design variation for this bridge (SJRB DV) that features shorter bridges over the San Jacinto River.
- San Jacinto River (SR-79 Area):** All MCP Build Alternatives cross the San Jacinto River floodplain along the SR-79. The current viaduct will be widened to the west to allow the transition from MCP connectors to SR-79. Under the base case for each MCP Build Alternative, the bridge will be approximately 1,236 ft in length and 11.2 to 27.8 ft in height. Under the SJN DV, the bridge will be approximately 1,254 ft in length and 11.2 to 27.8 ft in height.

More detailed discussion on the location of bridges over water resources and determination of length of bridge over water resources can be found in Appendix I (Attachment C, Bridge Location Planning Process; and Attachment D, Bridge, Waters, and Wetlands Considerations).

Bridges for Local Road Crossings

The MCP Build Alternatives include a number of overcrossings/undercrossings of local roads to allow the MCP project to pass over or under those roads without disruption to through traffic on the MCP project or the local roads. Appendix I, Attachment B, lists the MCP Build Alternatives and the locations along those alignments where overcrossings/undercrossings are proposed to span local roads. These overcrossings/undercrossings are labeled “Local Road” in Appendix I, Attachment B.

Bridges for Wildlife Crossings

The MCP Build Alternatives include a wildlife crossing intended to link habitat that would otherwise be separated. Wildlife Crossing No. 10 is an undercrossing proposed along each of the MCP Build Alternatives east of Bridge Street, at approximately Station 685+95, as shown in the wildlife crossing exhibits included in Appendix I.¹ This crossing will be a corrugated steel arch structure (or elliptical or circular culvert structure) that has a 12 ft high by 35 ft wide opening and a natural earthen bottom. This cross section is proposed to achieve an openness ratio (height to length) to accommodate large mammals. Refer to Appendix I for additional information. Wildlife Crossing No. 10 will be restricted to use by wildlife only.

RCTC will coordinate with the County of Riverside to plan for a separate recreational trail crossing at a sufficient distance from Wildlife Crossing No. 10.

Bridges for Other Crossings

The MCP Build Alternatives include a number of crossings (such as crossing of railroads, direct connectors at the systems interchanges, and crossing of auxiliary lanes) on the I-215 mainline. System interchange direct connectors are at MCP project interchanges with I-215 and SR-79. These connectors are structures that range in length from 1,312 ft to 5,905 ft. These bridges are labeled “Other” in Appendix I, Attachment B, and are shown on maps in Appendix I, Attachment A.

¹ A Station is a unit of measurement to define linear distance on the engineering plans of a new or existing roadway. The MCP Stations are separated by approximately 328 ft.

2.3.2.5 HOV Lanes and Park-and-Ride Facilities

No high occupancy vehicle (HOV) lanes or park-and-ride facilities are proposed as part of the MCP Build Alternatives since no traffic congestion is expected on the MCP facility through the horizon year of 2040. However, the proposed design of any of the MCP Build Alternatives would not preclude future HOV lanes or park-and-ride facility projects, with the exception of any future freeway to freeway HOV direct connectors at MCP/I-215 due to right of way and railroad constraints. The approved Perris Valley Line project and proposed Perris Multimodal Facility are in close proximity to the MCP project and those plans currently include a park-and-ride facility that would be located near the MCP project.

2.3.2.6 Utility Relocation

Utility relocation is proposed as part of the MCP Build Alternatives. Utilities located longitudinally in the proposed right of way would be relocated outside of the right of way. Subsurface utilities crossing the MCP right of way would be relocated into protected casings across the right of way.

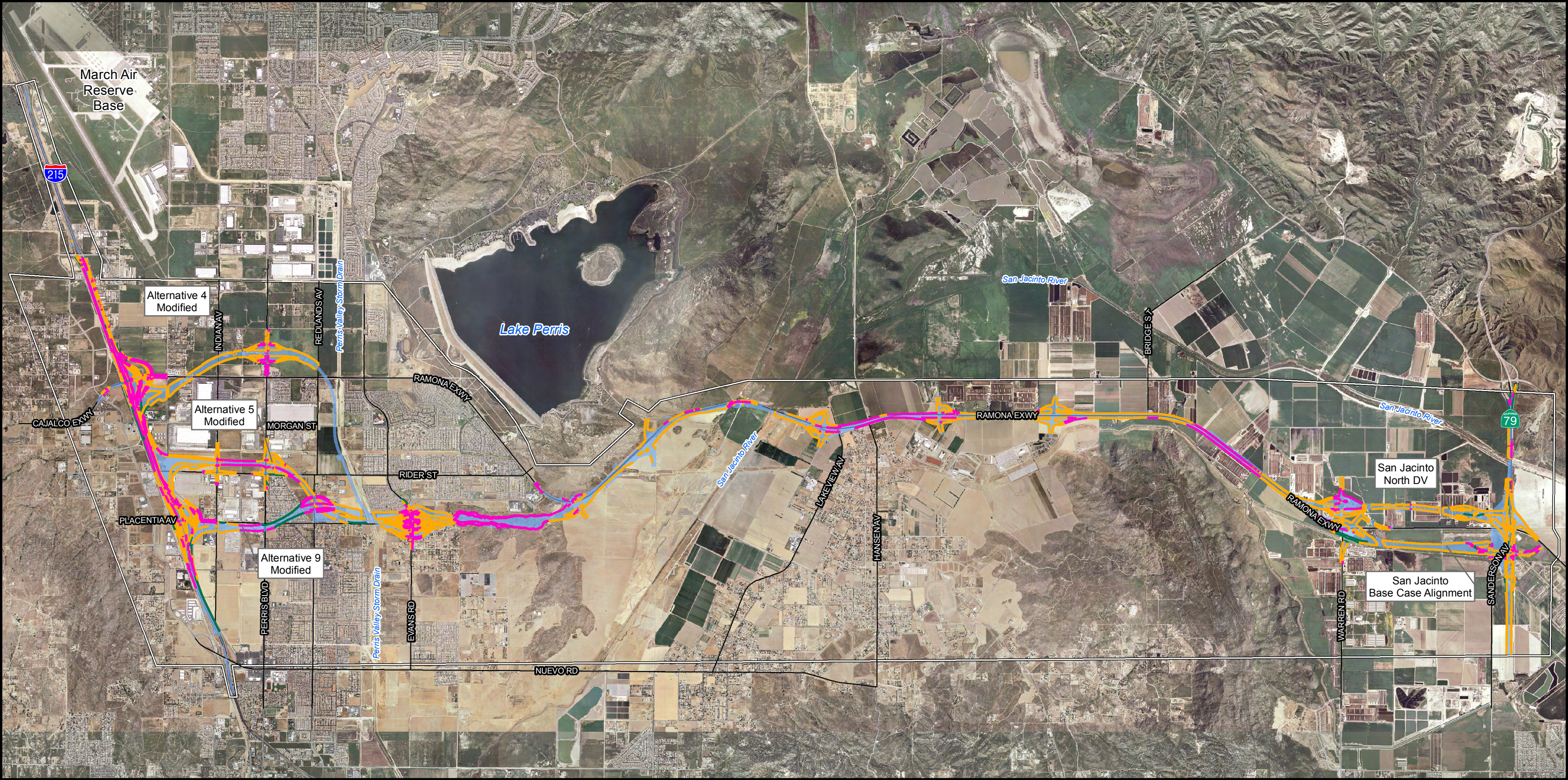
The MCP Build Alternatives also result in a small number of permanent utility easements required in the Perris area, as well as a potential “utility corridor” in the San Jacinto Valley area. These locations and impacts have been accounted for in the overall “footprint” of the MCP Project and in the relocation impact discussion; see Section 3.4.2, Relocations, in this Final EIR/EIS.

Additional coordination with the affected service providers will occur during final design as they require more detailed design than the current 35 percent design level to render their final approval of the utility relocations (also see Mitigation Measures U&ES-8).

2.3.2.7 Retaining Walls

Retaining walls will be constructed at several locations. Retaining walls are used to minimize the amount of grading, avoid or minimize right of way acquisitions in developed areas, and avoid or minimize impacts to sensitive resources. Retaining wall locations will be refined in final design if the MCP project is approved. Table 2.3.B shows a summary of retaining walls by alternative. Preliminary retaining wall locations are shown in Figure 2.3.4. Section 3.7 of this Final EIR/EIS includes Mitigation Measure VIS-4, which requires the RCTC to include aesthetic enhancements for retaining walls.

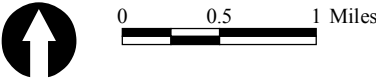
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LEGEND

- Study Area
- Limits of Proposed Improvements (All Alternatives and Design Variations)
- Grading Limits: Cut
- Grading Limits: Fill
- Retaining Wall

SOURCE: Jacobs Engineering (02/2011); Thomas Brothers (2010); Eagle Aerial (03/2010)



I:\CV531\GIS_Mod\Visual\DraftFinalFigures\CutFillRetainingWalls.mxd (11/14/2014)

FIGURE 2.3.4

Cut, Fill, and Retaining Walls
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)



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Table 2.3.B Retaining Wall Summary by Alternative

MCP Build Alternative	Retaining Wall Length by Height (ft)											
	Type I							MSE Wall				Total (sf)
	Height (ft)	2–5	6–9	10–13	14–17	18–21	22–25	26–29	30–33	34–37	38–41	
4 Modified	4,782	3,792	10,037	4,470	1,710	256	0	0	0	0	675	25,721
5 Modified	4,804	6,093	10,986	7,074	3,166	3,443	0	66	230	4,392	675	40,931
9 Modified	4,124	3,931	9,264	6,082	4,582	655	0	2,098	0	0	675	31,411

Source: Jacobs Engineering (2011).

ft = feet

MCP = Mid County Parkway

MSE = Mechanically Stabilized Earth

sf = square feet

Type 1 = Reinforced concrete cantilever wall with spread footing foundation

2.3.2.8 Noise Barriers

Noise barriers will be constructed as required per the Caltrans Traffic Noise Analysis Protocol to provide noise attenuation for existing noise-sensitive land uses, as well as noise-sensitive land uses that are under construction or are fully permitted for development. The *Mid County Parkway Noise Study Report* (2011) analyzes existing noise conditions, as well as future conditions with and without the proposed project. Noise abatement measures must be considered where adverse traffic noise impacts are identified. Traffic noise impacts exist where: (1) an increase of 12 A-weighted decibels (dBA) or more over existing noise levels; or (2) predicted noise levels that approach or exceed the Noise Abatement Criteria (NAC)¹ (please see Section 3.15, Noise, for descriptions of these terms).

According to the Caltrans Traffic Noise Analysis Protocol, for noise abatement to be considered feasible, the noise abatement must provide a minimum of 5 dBA noise reduction at impacted receivers. The overall reasonableness of noise abatement is determined by considering a minimum noise reduction of 7 decibels (dB) for at least one of the benefited receptor locations and environmental impacts of abatement construction; opinions of affected residents; input from the public and local agencies; and social, legal, and technological factors. Please see Section 3.15 of this Final EIR/EIS for a detailed discussion of noise impacts and maps showing proposed noise barrier locations. In addition, Section 3.7 of this Final EIR/EIS includes Mitigation Measure VIS-4, which requires RCTC to include aesthetic enhancements for noise barriers in the final design.

A summary of the length of noise barriers per Build Alternative is provided in Table 2.3.C.

¹ Caltrans Traffic Noise Analysis Protocol. May 2011. Page 6.

Table 2.3.C Noise Barriers by Alternative

Alternative	Total Length of Barriers (feet)
4 Modified	19,872
5 Modified	18,166
9 Modified	21,095

Source: Mid County Parkway Noise Study Report (2011).

2.3.2.9 Lighting

Caltrans standards require highway safety lighting at particular points in interchange areas to illuminate areas of potential vehicle conflict and to delineate exit ramps, entrance ramps, and island noses. Pole-mounted safety lighting will be provided at the system and service interchanges, ramps, and other areas as required by Caltrans and/or Riverside County roadway standards. For any interchanges located near Public/Quasi-Public (PQP) lands such as the San Jacinto Wildlife Area (SJWA) (see Section 3.17, Natural Communities, of this Final EIR/EIS for a description of PQP lands), the lighting will be shielded and directed to focus downward to illuminate only the MCP project and connecting roads so as to minimize light leakage outside the required safety lighting areas. Any existing lighting on I-215 and SR-79 impacted by the connection of the MCP project would be replaced.

There will not be lighting on the MCP project mainline. Section 3.7 of this Final EIR/EIS includes Mitigation Measure VIS-7, which requires RCTC to prepare a lighting plan and design lighting fixtures that would minimize glare on adjacent properties.

2.3.2.10 Landscaping

Replacement landscaping will be provided for any existing landscaping within the rights-of-way for I-215 and SR-79 impacted by the MCP project. Landscaping and ground cover for erosion control will generally consist of native plant species to replace sensitive plant species, particularly in areas adjacent to undeveloped land and existing/proposed habitat reserve areas with native plant species. All plant species will be drought-tolerant to minimize the need for irrigation. Erosion control/ground cover will be provided between the edge of pavement and the cut/fill line and at all water quality Best Management Practices (BMP) basins, and on slopes. Landscaping will be in compliance with the Western Riverside County MSHCP Urban/Wildlands Interface Guidelines.

Section 3.7 provides additional discussion of the use of native plant materials and other landscaping to soften views of the proposed facility. Section 3.7 of this Final EIR/EIS

includes Mitigation Measure VIS-5, which provides details on the proposed landscape plan. Coordination with the master landscape plans for I-215 will also be incorporated into preparation of the landscape plan for the MCP project.

RCTC will coordinate with Caltrans and local agencies (County of Riverside, City of Perris, and City of San Jacinto) to determine maintenance responsibilities for the roadside landscaping through the execution of respective maintenance agreements.

2.3.2.11 Fencing and Median Barriers

Fencing would be installed along the right of way limits for the entire length of the MCP Build Alternatives. The height of the fencing will vary, with fencing in urban areas at 6 ft and in rural areas at 5 ft. The type of fencing may include but is not limited to: (1) chain link fencing (Type CL-6 or equivalent) in urban or developed areas; and (2) barbed wire (Type BW) and wire mesh (Type WM) in rural areas. The specific locations, and the fence types and heights will be finalized in consultation with Caltrans and the affected local jurisdictions and property owners during final design because the current 35 percent design level plans do not provide this level of detail.

The MCP project mainline will have a thrie-beam barrier in the center of the 62 ft wide median per Caltrans' standards. A thrie-beam barrier is a post-and-block system, semi-rigid barrier that is used to prevent cross median vehicle accidents and allow for preservation of median planting and that can minimize visual impacts. Thrie-beam barriers are more aesthetically compatible in rural and natural areas because of their less “urban” character as compared to concrete median barriers. Improvements to I-215 between Nuevo Road and Van Buren Boulevard will include the addition of a Type 60 concrete barrier¹ in the median per Caltrans' standards due to the reduced median width.

2.3.2.12 Runoff Management/Water Quality Best Management Practices Design Pollution Prevention BMPs

Design Pollution Prevention BMPs are permanent measures that are used to reduce erosion after construction is complete. These following Design Pollution Prevention BMPs are applicable to the proposed project:

- **Downstream Effects:** The proposed project would increase impervious surface areas, which would increase runoff volume and flow velocity. Erosion resulting from any

¹ The Type 60 concrete barrier is reinforced concrete with the following dimensions: 36 inches (in) high, 24 in wide on the bottom, and 6¼ in wide on the top.

increased runoff flows would be minimized using erosion control measures such as rock slope protection.

- **Slope Surface Protection:** The creation of new cut-and-fill slopes would potentially increase erosion. Retaining walls would be incorporated to reduce steepness of slopes or to shorten slopes. Slopes would be rounded and shaped to reduce concentrated flow. During final design, slope stabilization and measures to slow velocities via landform grading and use of fiber rolls will be evaluated and applied in accordance with Caltrans' design standards.
- **Concentration Flow Conveyance Systems:** Existing crossing-culverts to be retained would be extended to the new-cut fill line. Where cross-culverts convey on-site and off-site runoff under the MCP alignment, the inlet/outlet would have flared end sections. Rock slope protection would be provided at the culvert outlets to minimize scour and erosion at the cross-culvert transitions. During final design, infiltration of highway runoff into roadside areas via sheet flow will be evaluated and applied in accordance with Caltrans' design standards.
- **Preservation of Existing Vegetation:** The project would require removal of existing vegetation; however, the existing vegetation and landscaping on existing slopes would be preserved to the greatest extent possible.

As a possible future statewide facility, the MCP project would comply with the requirements of the Caltrans Statewide Storm Water Management Plan (CTSW-RT-12-286.19.1, May 2003, revised July 2012).

Permanent Treatment BMPs

Permanent treatment BMPs are measures designed to remove pollutants from storm water runoff prior to discharge to receiving waters. Biofiltration swales and infiltration basins are proposed as permanent treatment BMPs for the MCP project. During final design, if it is determined that soil conditions at the location of the proposed BMPs are not appropriate for infiltration, the proposed infiltration basin at that location would be substituted with a detention basin. These three types of permanent treatment BMPs are discussed in detail below.

Biofiltration swales (sometimes referenced as bioswales) are vegetated channels that convey storm water and remove pollutants by filtration through the grass, sedimentation, adsorption to soil particles, and infiltration through the soil. Biofiltration swales are effective at removing debris and solid particles, although some removal of dissolved constituents is also achieved. Two biofiltration swales are proposed as part of the project

(please see Figure 3.10.3 in Section 3.10, Water Quality and Storm Water Runoff, for the locations of the BMPs).

Infiltration basins are designed to remove pollutants by capturing storm water runoff and infiltrating them directly to the soil, instead of them being discharged into receiving waters. Infiltration basins remove a wider range of pollutants than detention basins. Pollutants removed by infiltration basins include total suspended solids, nutrients, pesticides, particulate metals, dissolved metals, pathogens, litter, biochemical oxygen demand, and total dissolved solids. Infiltration basins would be implemented wherever soil is appropriate (infiltration greater than 20 percent). A total of 37, 41, and 36 infiltration basins are proposed for Alternatives 4 Modified, 5 Modified, and 9 Modified (with or without design variations), respectively.

Detention basins are designed to reduce sediment and particulate loading in storm water runoff. Water is temporarily detained in the basin to allow sediment and particulates to settle out before the runoff is discharged to receiving waters. Detention devices usually retain water for 24 to 72 hours. During final design, if the infiltration testing results indicate that the infiltration rate is less than 0.5 inch per hour, thereby indicating that infiltration basins are not appropriate, the infiltration basin would be substituted with a detention basin.

All Permanent Treatment BMPs will be inspected and maintained per the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (October 2009).

2.3.2.13 Grading

All MCP Build Alternatives will require extensive grading. During final design when more detailed engineering is performed, the project would be designed to reduce the earthwork quantities as much as possible by engineering the roadway design to closely follow the natural terrain. Section 3.7 of this Final EIR/EIS includes Mitigation Measures to reduce visual impacts from grading. By conforming to the existing ground surface as much as possible, the amount of cut-and-fill grading decreases, which in turn reduces the disturbance limits for the MCP Build Alternatives.

The earthwork requirements are presented below in Table 2.3.D. Alternatives 4 Modified, 5 Modified, and 9 Modified will require anywhere from 4 to 7.8 million cubic yards of borrow material, which would be imported from environmentally compliant borrow sites.

Table 2.3.D Earthwork by Alternative

Alternative	Quantity and Type of Earthwork (cubic yards)			
	Excavation	Fill	Imported Borrow	Disposal Off Site
4 Modified	6,585,986	14,363,672	7,777,686	0
5 Modified	6,888,583	13,470,980	6,582,397	0
9 Modified	7,907,827	11,975,678	4,067,851	0

Source: Jacobs Engineering, 2011.

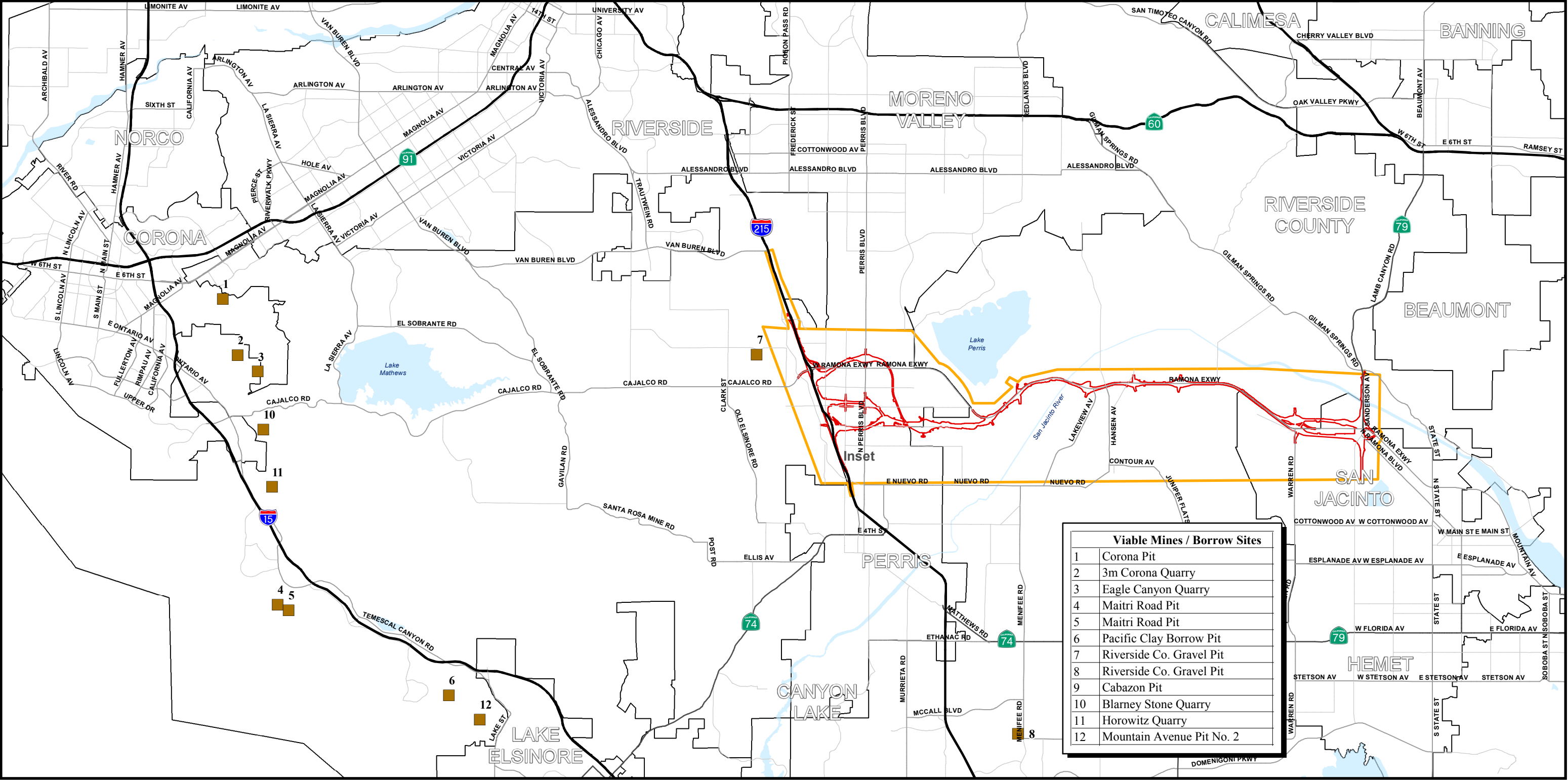
2.3.2.14 Borrow Areas/Haul Routes

The locations of local borrow sites that have been identified for the MCP project are shown in Figure 2.3.5. These sites are within the project vicinity and capable of handling the needed quantities of borrow described in Table 2.3.D. Operators are the points of contact for accessing borrow sites, and a list of viable operators in the area of the project is provided in an inset table on Figure 2.3.5. These sites are existing commercial sites that are environmentally compliant for excavation; therefore, use of these sites does not require further additional environmental approvals.

At the time of construction, the contractor will be required to use only borrow sites that have been environmentally approved for excavation. The Resident Engineer will require the Construction Contractors to use only designated truck routes in the Cities of Perris and San Jacinto and the County of Riverside during all hauling of borrow material.

There are two types of truck trips that will be generated as a result of earthwork activities: (1) Earthwork Balance – truck trips within the project to fully utilize excess material as fill wherever possible on the project; and (2) Imported Borrow Site – truck trips to bring in needed imported borrow that cannot be generated by the project. Table 2.3.E shows both types of truck trips for all alternatives. The truck hours for Earthwork Balance are calculated based on where material is generated and where the material is utilized on the project. The truck hours for Imported Borrow Site are calculated based on where the need for borrow is or where the excess material is generated and the locations of the borrow sites as shown in Figure 2.3.5.

The area within the right-of-way limits of the MCP project will be graded and used as a haul route to move excavated material to areas where that material will be used as fill in the project construction. Imported material will be hauled to the site on designated State and local truck routes such as Ramona Expressway. Excess material not used in the




LEGEND

- Limits of Proposed Improvements (All Alternatives and Design Variations)
- Mid County Parkway Study Area
- Cities
- Mine Locations / Borrow Sites

Viable Mines / Borrow Sites	
1	Corona Pit
2	3m Corona Quarry
3	Eagle Canyon Quarry
4	Maitri Road Pit
5	Maitri Road Pit
6	Pacific Clay Borrow Pit
7	Riverside Co. Gravel Pit
8	Riverside Co. Gravel Pit
9	Cabazon Pit
10	Blarney Stone Quarry
11	Horowitz Quarry
12	Mountain Avenue Pit No. 2

SOURCE: TBM (2006), Jacobs Engineering (2/2007), LSA (2007)



0

1.25

2.5 MILES



FIGURE 2.3.5

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